

O'Dell Creek Headwaters (OCH) Restoration and Conservation Easement Project

Environmental Assessment

Background

Wetland and riparian habitats comprise an extremely small physical area (<1%) of the western United States. Although these habitats are restricted in area, they harbor a wide diversity of birds and other wildlife. Restoration and conservation of these habitats is occurring in Montana and throughout the west. A cooperative restoration effort was initiated in 2005 by private landowners, state and federal agencies, and local non-profit organization at the headwaters of O'Dell Creek in southwest Montana (Fletcher et al. 2006). This wetland complex area was partially drained by constructing ditches and by channelizing upper O'Dell Creek in 1955. This Environmental Assessment analyzes a wetland restoration project occurring in the area.

The Granger Ranch encompasses much of the headwaters area for O'Dell Creek including the proposed project site. A Montana Land Reliance conservation easement currently protects the overall conservation values of the Granger Ranch.

Chapter 1.0: Purpose of and Need for Action

1.1 Proposed Action

Montana Fish, Wildlife & Parks (FWP) proposes to 1) acquire a donated conservation easement on approximately 225 acres from the Granger Ranch 6 miles south of Ennis, Montana and 2) restore, enhance, and create approximately 12,355 feet of O'Dell Creek tributary streambed in an area that is currently made up of drainage ditches and channelized stream course which will also result in restoring at least 16.64 acres of surrounding historic wetland habitat.

Location of the proposed conservation easement: Madison County, Montana T7S, R1W Section 4

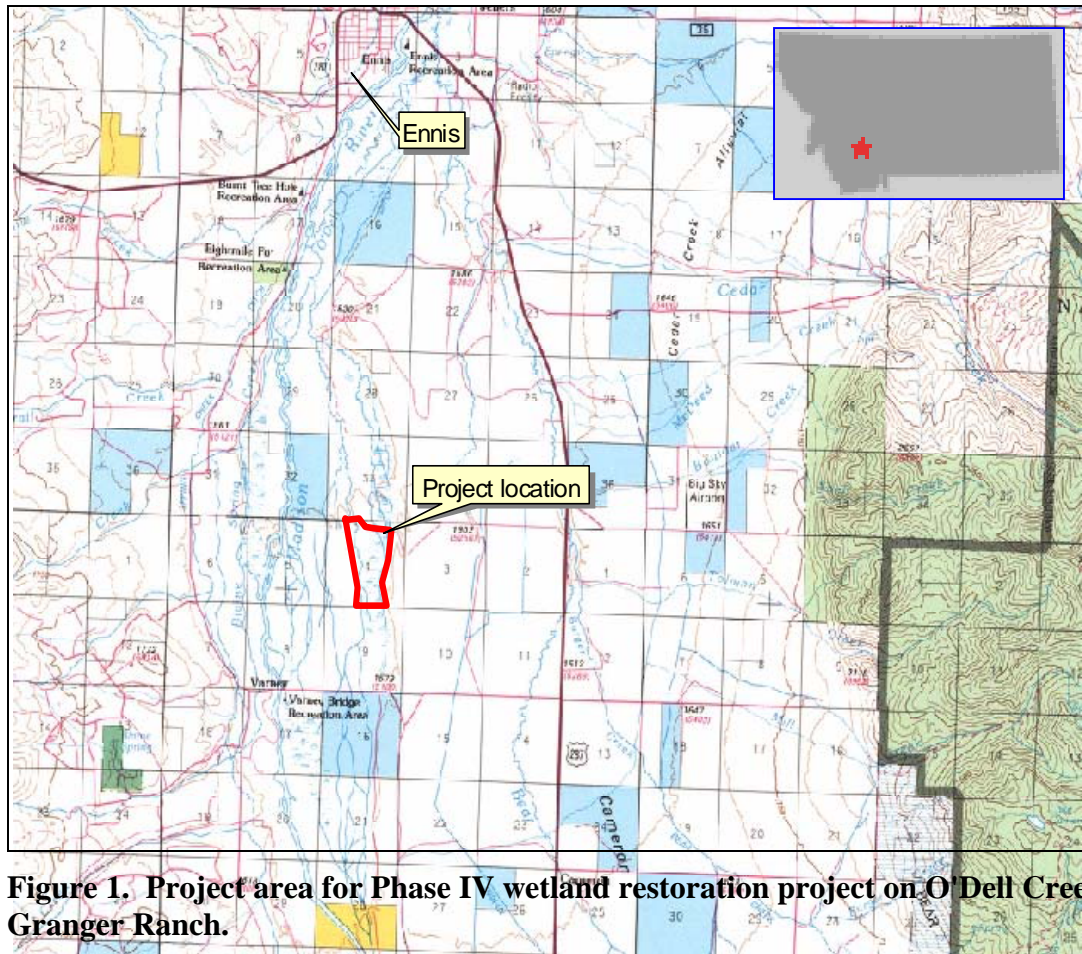


Figure 1. Project area for Phase IV wetland restoration project on O'Dell Creek, Granger Ranch.

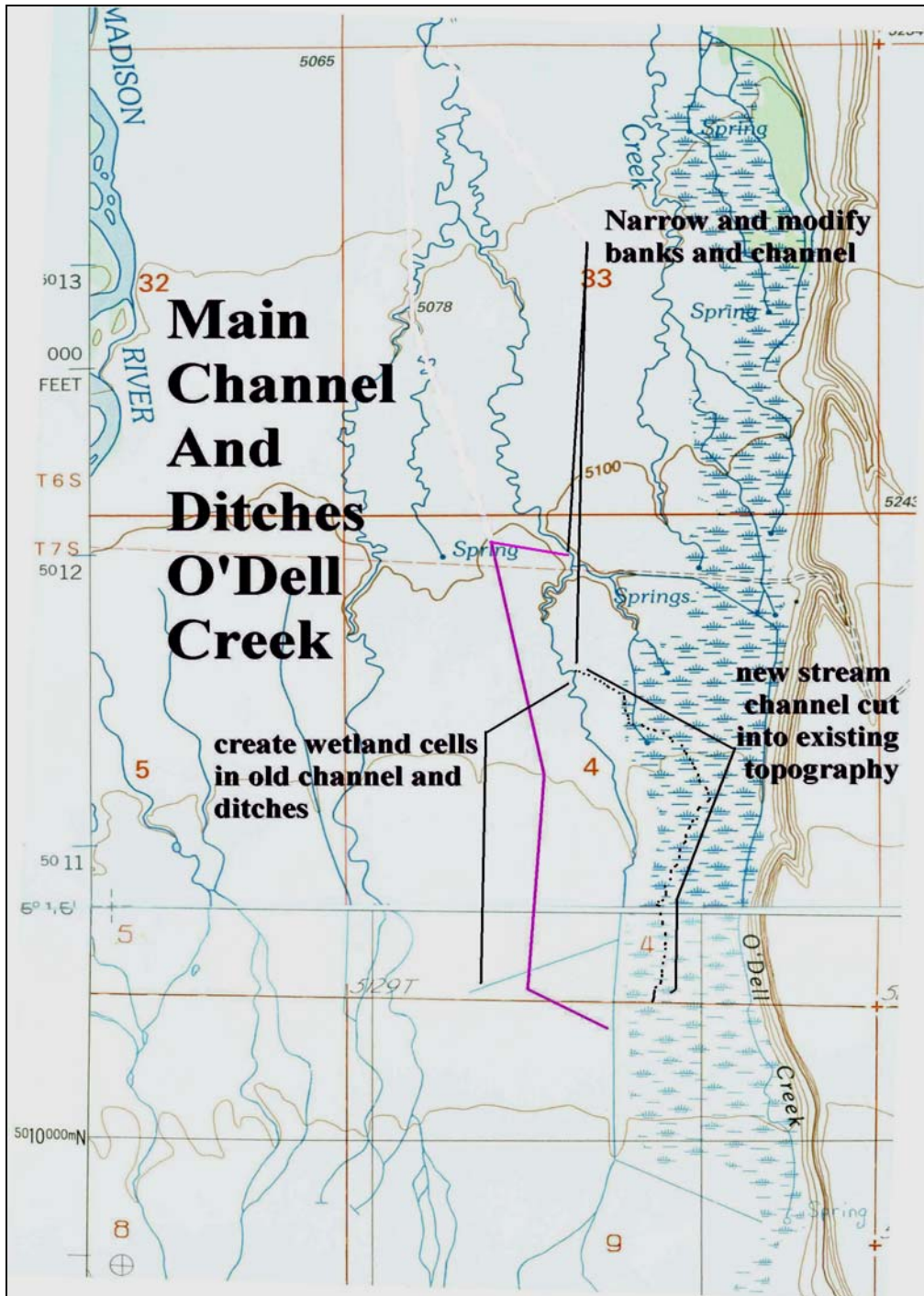


Figure 2. Proposed wetland restoration project area with general construction objectives.

1.2 Need for the Action

From 2004 through 2006, FWP accepted mitigation fees from eight agencies and businesses that applied to the Army Corps of Engineers for Section 404 permits. These specific permits allowed permittees to place fill in jurisdictional wetlands as part of construction projects in exchange for paying a fee to FWP in lieu of mitigating their wetland impacts. FWP and the Army Corps of Engineers have agreed that the mitigation required to offset these impacts could be met by restoring a portion of the O'Dell Creek Headwaters (OCH) Site south of Ennis in Madison County, Montana. FWP has been working with conservation agencies and organizations on the site since 2005 to restore what was estimated to be a 1,000-acre wetland that was largely drained by ditches dug through the site in 1955. The benefits of this project include restoring dry, somewhat weedy, drained areas to their historic, productive wetland condition, expanding habitat for fish and wildlife, increasing surface water flow into the Madison River, and enhancing the quality of water on as well as discharging from the site.

1.3 Objectives of the Action

- 1.3.1 The goal of the O'Dell Creek Headwaters (OCH) ILF mitigation project is to restore wetland function to at least 16.64 acres within the project area that do not currently meet wetland criteria established in the Corps of Engineers' 1987 Wetland Delineation Manual. This will be accomplished through restoring a length of a tributary stream of O'Dell Creek after plugging existing drainage ditches on the site.
- 1.3.2 Restoration of the OCH is expected to deliver a consistently high rate of cold-water discharge into O'Dell Creek which enters the Madison River just downstream from the town of Ennis. The Madison River, as a primary headwater tributary to the Missouri River and a world class trout fishery, has been experiencing record low flows and high water temperatures in recent years. This project is expected to provide some benefit to the Madison River in terms of flows and fish habitat.

1.4 Applicable Permits and Other Consultation Requirements

1.4.1 Permits

Army Corps of Engineers – 404 (Pending)
Montana Department of Environmental Quality – 319 (Approved)
Madison Conservation District – 310 (Pending)

1.4.2 Other Consultation Requirements

Montana State Historical Preservation Office – site reviewed and approved in 2007 for construction.

1.5 Consultation with Other Agencies and Interested Parties

Many agencies, organizations, and individuals have reviewed the O'Dell Creek Headwaters area in consideration of its potential for restoration and conservation work. Those who have toured, reviewed, and evaluated the project and its merits include Montana Governor Brian Schweitzer, the Army Corps of Engineers Helena Regulatory

Office, U.S. Fish and Wildlife Service personnel, USDA Natural Resources Conservation Service and Farm Service Agency personnel, the North American Wetlands Conservation Council, the Montana Land Reliance, the Trust for Public Land, representatives of the Madison Valley Ranchlands Group, and the Missouri River Conservation Districts Council.

Chapter 2.0: Alternatives Including the Proposed Action

2.1 Introduction

FWP is obligated to create or restore a minimum of 16.64 acres of wetland habitat through the In Lieu Fee Mitigation program. The proposed action and a no action alternative are the only viable options for consideration at this time. If the no action alternative is selected, a new mitigation site will need to be identified by FWP in collaboration with the Army Corps of Engineers which will also require a separate MEPA analysis.

2.2 Description of Alternatives

2.2.1 No Action Alternative. Under this alternative, the drainage ditches and channelized stream course would remain in their current state. Habitats that were former wetlands would remain dry upland sites. FWP would not fulfill its obligation to the Corps for mitigating earlier wetland impacts.

2.2.2 Proposed Action Alternative. Acquisition of a Conservation Easement and Restoration of Wetland Habitat along O'Dell Creek Tributary

The current conceptual design for the proposed project involves restoring 2,295 feet of existing stream channel to a natural pattern to improve depth and temperature, constructing 5,800 feet of meandering channel to convey primary stream flow across the site, and closing 4,260 feet of drainage ditch and dredged channel to restore wetland hydrology, soils, and hydrophytic vegetation in the surrounding historic wetland habitat. Construction would be accomplished with hydraulic excavators, a skid steer, and tracked dump truck to minimize disturbance to the surface vegetation. The project would be built in May and June 2008 with construction completed by the end of June. Area disturbed by construction is expected to be approximately 53 acres. Vegetation mats derived from construction will be used to rehab moist disturbed sites that cannot be seeded. Disturbed upland sites will be seeded to a grass-forb mixture to reduce the likelihood of weeds encroaching into the area. The construction site will be monitored and managed to assure disturbed sites fully revegetate with suitable plant species.

The 225-acre conservation easement donated by the Granger Ranch would provide legal protection in perpetuity to the mitigation site and immediate surroundings. The easement would protect wetland values associated with the mitigation project and also would allow for conservative livestock grazing

described as grazing 2 out of 3 years from August 1 through October using a stocking rate of 1.4 acres/animal unit month.

Chapter 3.0: Affected Environment

3.1 Physical Resources

3.1.1 Land Resources

The project site occurs 6 miles south of Ennis in the greater Madison River flood plain. The flood plain along this section of the Madison River is over 2.5 miles wide. The project area occurs about 1 mile east of the Madison River adjacent to a higher plain escarpment. Parent soils are generally water-deposited from surrounding mountains and meandering flows of the Madison River. Soil textures are variable and include low shallow silt areas, gravel to cobble dry sites with intermittent clay, and sand deposits. Remnant wetland sites contain highly organic silts. Most upland sites that historically were wetland habitat (prior to construction of drainage ditches and stream channeling in the 1955) are currently well-drained and arid with relatively low productivity and considerable bare soil.

3.1.2 Vegetation Resources

The project site was historically wetland, dominated by wetland obligate plants and facultative wetland plants. In its current drained condition, the site has less vegetative diversity dominated by arid upland plants. Shrubs and trees are currently nearly absent from the site due to decades of grazing and haying in a manner that was not compatible with woody vegetation. Upland plants that did not typically occur in the area including Canada thistle and other weedy species dominate parts of the OCH site. Restoration of the area is expected to reduce the number and/or size of thistle patches, and enhance the growth of wetland plants and those palatable to wild and domestic ungulates. There are no known unique, rare, threatened, or endangered plants on the site based on vegetative surveys by University of Montana, Aquilavision, Copeland Biologicals, and field investigators. Field investigations have also not shown major infestations of noxious weeds on the site. It is not anticipated that this project will create a weed problem on the site.

3.1.3 Fish & Wildlife Resources

The project site currently supports a variety of bird, mammal, and fish species. However, comparing between restored wetland habitats and ditched/channelized habitats in the O'Dell Creek Headwaters area, there is a considerable difference as to wildlife species richness and abundance. Shallow moisture, resulting lush vegetation, and standing water play a considerable role in attracting a much broader diversity of wildlife and fish species.

3.1.4 Water Resources

The water source for this project is an unknown number of springs that arise within the OCH area, some within the exterior boundaries of the mitigation site. These water sources are believed to represent water emanating from the toe of the

Cedar Creek Alluvial Fan, the primary geologic feature of the area which feeds wetlands along the east side of the Madison Valley from Ennis Lake south beyond the OCH area.

3.1.5 Air Quality

The air quality in the Project Area is comparable to other sparsely populated intermountain valleys of central and western Montana. Pollution levels are generally low except during unique circumstances such as fire events or isolated dust storms.

3.2 Human Resources

3.2.1 Land Use

The restoration site has been used intensively for livestock grazing and hay production for at least five decades. It has experienced a slow decline in productivity due to grazing impacts and effective draining of wetland habitat.

3.2.2 Cultural Resources – The proposed project site has been surveyed for culturally-significant resources by a qualified archaeologist in collaboration with the State Historical Preservation Office. Areas where construction is proposed to occur did not reveal any culturally significant resources.

3.2.3 Recreation & Aesthetic Resources

The Granger Ranch allows limited public access for hunting, fishing and other recreational pursuits. There are considerable opportunities for hunting, fishing, and general wildlife viewing.

Chapter 4.0: Environmental Consequences

4.1 Introduction

The Proposed Action is expected to benefit the physical and human environment associated with the Project Area. The following section compares consequences of the Proposed Action to the No Action alternative.

4.2 Predicted Attainment of the Project Objectives of all Alternatives

4.2.1 Predicted Attainment of Project Objective #1

4.2.1.1 No Action: This alternative would maintain the current situation. Sites that were formerly wetland habitat will remain arid short-grass habitats.

4.2.1.2 Proposed Action: This alternative would restore wetland habitats to near historic characteristics. Former arid sites would be restored to wetland characteristics resulting in a minimum of 16.64 restored wetland acres.

4.2.2 Predicted Attainment of Project Objective #2

4.2.2.1 No Action: Water flows and temperature would remain unchanged.

4.2.2.2 Proposed Action: Based on water monitoring since 2005, we anticipate that flows would increase and water temperatures would be maintained at

a temperature that is optimal for trout habitat, both as a result of a restored stream channel and improved subsurface water storage capacity.

4.3 Predicted Effects on Relevant Affected Resources of All Alternatives

4.3.1 Predicted Effects on Land Resources

4.3.1.1 Effects of No Action: This maintains the status quo. Land resources would remain in a semi-desertified state because of an artificially low water table. Soils would remain dry with a sparse covering of vegetation and considerable bare ground.

4.3.1.2 Effects of Proposed Action: Restoring the proposed section of stream course would raise the water table and improve soil productivity, restoring soils to their historic wetland characteristics.

4.3.2 Predicted Effects on Vegetation Resources

4.3.2.1 Effects of No Action: Sparse grass and weedy vegetation would continue to dominate the Project Area. The combination of low water table, shallow and coarse soils, and arid climate will only support limited dry land vegetation.

4.3.2.2 Effects of Proposed Action: The immediate result of plugging drainage ditches and diverting flows to a restored stream channel is the recurrence of a shallow water table. Riparian vegetation, including lush grass and woody shrubs depends largely on a shallow water table and secondarily on well-managed ungulates. We anticipate a considerable positive vegetative response from the wetland restoration, resulting in a dramatic increase in vegetative diversity and productivity. Conservative grazing will further maintain and conserve these wetland values.

4.3.3 Predicted Effects on Fish & Wildlife Resources

4.3.3.1 Effects of No Action: Wildlife and fish currently use the project site but given its arid habitat and shallow channelized stream, both the uplands and stream are of limited value.

4.3.3.2 Effects of Proposed Action: Although the primary purpose of the O'Dell Creek Headwaters (OCH) restoration project is to restore at least 16.64 acres of wetland habitat, considerable fish and wildlife benefits will also result. Spring creek restoration projects in the area that were completed by partner agencies and organizations have revealed increases in the numbers and size of trout based on FWP surveys. These sites have also experienced increases in spawning rainbow trout that were formerly dominated almost exclusively by brown trout. Both species are of significant economic and recreational benefit to O'Dell Creek anglers, anglers on the Madison River, and to the economies of Ennis and nearby communities.

Studies by researchers from the University of Montana's Avian Science Center have conclusively shown an increase in the diversity and abundance of breeding birds where past restoration projects have been

completed along tributaries of O'Dell Creek. Greater sandhill cranes now nest on restored portions of the OCH site as do sora rails and other wetland dependent birds. Rocky Mountain trumpeter swans, a priority species for FWP based on its Comprehensive Fish and Wildlife Conservation Strategy, winter throughout the site. Restoration of the OCH wetlands is expected to provide additional breeding habitat for ducks, geese, and potentially trumpeter swans. River otters have moved into the OCH wetland since the first restoration work was done, a unique occurrence not documented previously. The OCH site has an active bald eagle nest. Adults and young from that nest territory forage for fish throughout the OCH area. Prior to its restoration, the use of this site by bald eagles during the summer was uncommon.

4.3.4 Predicted Effects on Water Resources

- 4.3.4.1 Effects of No Action: Water would continue to flow from and through the Project Site. Benefits derived from the water would remain limited due to a deep water table, shallow channelized stream course, and somewhat lesser flows and warmer temperatures.
- 4.3.4.2 Effects of Proposed Action: Construction and soil disturbance work will result in temporary sediment loads derived from both the stream channel and runoff flows. Increased sediment loads are temporary and mitigation measures will be implemented to minimize erosion. This impact is considered minor.

Past restoration work in the O'Dell Creek Headwaters area has increased the amount of groundwater (subsurface water) that exists on the site. Flow monitoring data gathered by DJP Consulting, LTD., the site's primary contracting firm, have conclusively shown that flow of water discharged into O'Dell Creek from the wetlands restored thus far is far greater than emanated from the wetland prior to any restoration being completed. The Proposed Action is expected to have a similar effect on increasing the flow of surface water from the site. DJP Consulting's temperature data collection efforts for the past three years have also consistently shown that the restored areas keep the water temperature in the restoration area within the optimal range for growth and reproduction of trout. As a result of earlier restoration projects, larger quantities of cooler water are discharged into O'Dell Creek and ultimately into the Madison River from the restoration area during the critical summer months. With the recent dewatered, warmed condition of the Madison River over the past several years, this additional discharge of cool water from the O'Dell Creek site into the River is believed to directly benefit the river and its downstream water users.

4.3.5 Predicted Effects on Noise Resources

- 4.3.5.1 Effects of No Action: There are currently very few if any noises in the project site outside of natural noises and periodic farming equipment or ranching vehicles.
- 4.3.5.2 Effects of Proposed Action: Construction would result in an increase in noise that is minor and temporary. There are no nearby human dwellings that would hear the equipment.
- 4.3.6 Predicted Effects on Land Use Resources
 - 4.3.6.1 Effects of No Action: The project site has experienced a slow decline in productivity for grazing and haying forage. Improvements in grazing management alone would likely produce a positive response in vegetation. However, the arid characteristics over much of the project site limit the potential for substantial forage production.
 - 4.3.6.2 Effects of Proposed Action: The Proposed Action to restore the natural, wetland character of the site is not compatible with season-long livestock grazing and removal of vegetation by haying. The conservation easement between FWP and the Granger Ranch would stipulate that grazing of the site be allowed in perpetuity but only under a prescription that will limit the intensity, duration, and frequency of grazing. This may represent a reduction in the amount of livestock forage that the ranch may take off the site each year and for the long term. However, because the site is declining in productivity in its current condition due to drying of the site from drainage and the encroachment of weeds such as Canada thistle, restoration of wetland characteristics may increase the amount of palatable forage the site produces. This change could create a near balance between the amount of palatable forage currently available to livestock versus that produced on the restored site even though the Proposed Action limits the Ranch to a conservative grazing prescription. The grazing prescription in the conservation easement is essential to protect the bed and banks of the spring creeks, to restore and maintain the functions and values of the wetlands, and to restore and maintain the value of the site to diverse and abundant fish and wildlife populations. The Ranch considers this to be a desirable change in the restoration area because although they will be restricted to less grazing of the restoration site, they consider it to be a real benefit to have greater numbers and diversity of fish and wildlife occurring there.
- 4.3.7 Predicted Effects on Cultural Resources
 - 4.3.7.1 Effects of No Action: This would not involve any construction or ground disturbance.
 - 4.3.7.2 Effects of Proposed Action: The project site has been reviewed for cultural resources by a professional archaeologist in collaboration with the State Historical Preservation Office. No resources of concern were found in the area proposed for construction.
- 4.3.8 Predicted Effects on Recreation & Aesthetics Resources

- 4.3.8.1 Effects of No Action: The project site currently provides limited hunting, fishing and wildlife viewing opportunities. The Granger Ranch allows limited access for these activities.
- 4.3.8.2 Effects of Proposed Action: The restoration project would improve opportunities for recreation and would improve aesthetic values, especially associated with the restored stream and the onset of riparian vegetation. The proposed action does not guarantee public access to the 225-acre project site.
- 4.4 Summary of Impacts of Proposed Action: Construction and restoration work will generally result in direct short-term minor and mitigatable negative impacts related to elevated sediment loads and noise. Over the long term, the Proposed Action provides beneficial impacts to soil productivity, water quality, vegetation productivity and diversity, wildlife abundance and diversity, and aesthetics. The Proposed Action complements past restoration efforts accomplished by partner agencies and organizations. There are no known cumulative negative impacts associated with the Proposed Action neither are there long-term indirect negative impacts.

Chapter 5.0: Anticipated Timeline

FWP Commission Endorsement	April 2008
Public Comment Period for EA	Mid-April through Mid-May 2008
FWP Commission Final Approval	May 2008
Montana Land Board Approval	May 2008
Project Commencement	May 2008
Project Completion	June 2008

Chapter 6.0: Public Involvement

The public will be notified in the following manners to comment on this current EA:

- Public notices in the paper: *Bozeman Chronicle; Madisonian*
- Public notice on the Fish, Wildlife & Parks web page: <http://fwp.mt.gov>

Copies of this environmental assessment will be distributed to neighboring property owners and interested parties. Additionally, public meetings will be scheduled if requested.

This project requires approval of a Conservation Easement between Montana FWP and the Granger Ranch. The FWP Commission will take action on that Easement on May 15, 2008. The Land Board will then be taking action on that Easement during its meeting on May 19, 2008.

The public comment period will extend for (30) thirty days following publication of the legal notice in area newspapers. Written comments will be accepted until 5:00 p.m., April 30, 2008 and can be mailed to the address below:

Montana Fish, Wildlife & Parks
C/O O'Dell Creek Headwaters Restoration
1400 South 19th Avenue
Bozeman, MT 59718-5496

Or email comments to: thin@mt.gov
please refer to Subject: **O'Dell Creek Project**

Chapter 7.0: Conclusion

In Chapter 4, Environmental Consequences, FWP analyzed the impacts of 2 alternatives. For each impact, FWP considered the significance criteria, as set out in 12.2.421, ARM, including a) the severity, duration, geographic extent, and frequency of impact; b) the probability that the impact will occur or reasonable assurance that the impact will not occur; c) growth-inducing or growth-inhibiting aspects of the impact, including the relationship of the impact or contribution to the cumulative impacts; d) the importance to the state and to society of each environmental resource or value affected; e) any precedent that would be set as a result of an impact of the proposed action that would commit the department to future actions; and f) potential conflicts with local, state, or federal laws, requirements, or formal plans.

Through these reviews, FWP determined that none of the effects associated with these alternatives would have a significant impact on the physical environment or human population in the area. An EA is therefore the appropriate level of analysis for the proposed action and an Environmental Impact Statement will not be required. Specifically, there are not significant impacts of the Proposed Action because it sets out to reverse negative impacts from the past that will ultimately benefit the project site and surrounding area.

Chapter 8.0: Coordination and Partners

8.1 Partners for the proposed O'Dell Creek Headwaters project:

Montana Land Reliance, PPL Montana, The Trust for Public Lands, USDA Natural Resource Conservation Service, USDA Farm Service Agency, and U.S. Fish and Wildlife Service

8.2 Environmental Assessment prepared by:

Tom Hinz, Montana Wetlands Legacy Partnership Coordinator
Montana Fish, Wildlife & Parks
1400 S. 19th Ave.
Bozeman, MT 59718-5496

Chapter 9.0: References

Fletcher, R., Cilimburg, A. and Hutto, R. 2006. Evaluating Habitat Restoration at O'Dell Creek Using Bird Communities.

APPENDICES

A – Site/Monitoring Plan

Site/Monitoring Plan

**Granger Ranch In Lieu Fee Wetland Mitigation Site
Upper Missouri Watershed – O’Dell Creek Headwaters**

Prepared by

Montana Fish, Wildlife and Parks

1420 East Sixth Avenue

Helena, MT 59620-0701

INTRODUCTION

Pursuant to an agreement between the Corps of Engineers and Montana Fish, Wildlife and Parks, FWP collected fees associated with wetland impacts for twelve Section 404 permit applications in five watersheds from March 2004 until December 2006. FWP notified the Corps of its intent to terminate the program in December, 2006. The Corps responded in agreement to this request in January 2007 with the provision that FWP would complete one or more mitigation projects using the accumulated fees before June 30, 2008. FWP informed the Corps of its intent to withhold a portion of the accumulated fees beyond June 30, 2008 in order to defray monitoring costs for the site. Both agencies agreed by September 2007 that a single mitigation site would be developed in the Upper Missouri River watershed where eight of the twelve 404 permitted activities involved in the program are located. This Site/Monitoring Plan will describe how and when the proposed mitigation site will be developed, and the steps that FWP will follow to demonstrate to the Corps that it has met its obligation to create 16.64 acres of wetland mitigation.

SITE PLAN

A. Location, size, baseline condition (extent and inventory of existing wetlands and aquatic resources), site history, and type of aquatic resource compensation to be provided

The O’Dell Creek Headwaters (OCH) mitigation site is located in Madison County, Montana in Section 4, T7S, R1W.

This site is an historic wetland based on review of aerial photographs and maps of the site which date back to the late 1930’s. Construction of three previous phases of restoration on the OCH site have clearly demonstrated the presence of a relict peatland under at least part of the OCH, some of which has a peat layer several inches in depth.

16.64 acres of compensatory mitigation resulting from this project is proposed to emanate from restoration of surface hydrology, reestablishment of primarily wetland vegetation, and rewetting of the wetland soils such that they meet the 1987 Corps Wetland Delineation Manual criteria. The baseline wetland delineation to document the pre-construction condition of the proposed mitigation

site was conducted by Calypso Ecological Consulting in early October 2007 for DJP Aquatic Consulting Ltd.

B. Goals and objectives of the mitigation plan and schedule for conducting the activity that will provide compensatory mitigation

The goal of the O'Dell Creek Headwaters (OCH) ILF mitigation project is to restore wetland function to at least 16.64 acres within the project area that do not currently meet wetland criteria established in the Corps of Engineers' 1987 Wetland Delineation Manual. This will be accomplished through restoring a length of a tributary stream of O'Dell Creek after plugging existing drainage ditches on the site.

In addition to drawing from the knowledge of its own staff, FWP has consulted with members of the ILF Review Committee and others knowledgeable in the field to solicit feedback on the OCH project and proposed conceptual design. In so doing, FWP intends to meet the mitigation objective by integrating this ILF mitigation project as one phase of a multi-year, multi-phase partner project on the OCH site that has thus far restored over 19,000 feet of stream and restored over 200 acres of wetlands. Based on the success of these three previous projects completed adjacent to the current proposed project site, all partners involved recommend proceeding with this proposed plan.

C. Site selection criteria, to include practicability considerations for successful project establishment and watershed priority needs

As referenced above, this single mitigation site lies in the Upper Missouri River watershed where eight of the twelve 404 permitted activities involved in the In Lieu Fee Mitigation Program are located. Additionally, the OCH mitigation site was selected based on the following criteria: 1.) the OCH restoration is an estimated 5,000-acre site with surface features that suggest that much of the site was historically wetland; 2.) the OCH has an abundance of surface water emanating from springs that upwell throughout the area; and 3.) restoration efforts on the OCH site from 2005 through 2007 have shown consistently encouraging results with no failure of constructed stream channels, and vegetative and hydrologic recovery is occurring at an encouraging rate. The Madison River, as a primary headwater tributary to the Missouri River and a world class trout fishery, has been experiencing record low flows and high stream temperatures in recent years. Continued restoration of the OCH is expected to deliver a consistently high rate of cold water discharge into O'Dell Creek which enters the Madison River just downstream from the town of Ennis. This enhancement to the quantity and quality of discharges into the Madison River is expected to produce ecological and socio-economic benefits throughout the area and the watershed.

MITIGATION WORK PLAN

A. Boundaries of proposed treatment, including buffers.

The mitigation site is located in the southeast quarter of Section 4, Township 1 West, R 1 West, Madison County, Montana. The boundaries of the proposed treatment area will include

approximately 30 acres of what is now primarily upland habitat within which wetland characteristics will be restored. The exact location of the thirty acres will be decided once the wetland delineation report for the site has been finalized and results of a LIDAR flight over the area in September 2007 are also available. The wetland delineation and LIDAR data will facilitate locating the restoration area over the most appropriate 30 acres based on maximal restorable wetland acreage with a smaller associated upland buffer at or near its perimeter.

B. Construction methods, timing and sequence

Project design and layout will be completed by April 30, 2008. Securement of necessary 404, 310, and other permits as well as cultural resource evaluation and SHPO clearance will also be accomplished by this date. The current conceptual design for the proposed project is the same as that for the 2005-2007 phases of the project. This involves plugging existing drainage ditches with fill available on the site and digging a meandered stream channel to convey primary stream flow across the site. The combined effect of the ditch plugging and directing the previous ditched water through a created channel running the length of the wetland is expected to bring the surface hydrology back up to historic level. Construction will be accomplished with spider and track hoes to minimize disturbance to the surface vegetation. The project will be built in May and June 2008 with construction completed by the end of June.

C. Source of water supply and connectivity to other aquatic resources

The water source for this project is an unknown number of springs that arise within the OCH area, some within the exterior boundaries of the mitigation site. These water sources are believed to represent water emanating from the toe of the Cedar Creek Alluvial Fan, the primary geologic feature of the area which feeds wetlands along the east side of the Madison Valley from Ennis Lake south beyond the OCH area. The Granger Ranch holds at least two senior water rights to Madison River water upstream from the mitigation site as well as at least one water right from O'Dell Creek downstream from the proposed mitigation site. None of these rights are currently dedicated to restoration of the OCH site, either for the 2008 Phase IV project or Phases I or II. This is based on stream flow data maintained since the beginning of Phase I by DJP Consulting which clearly show that discharge from the restoration area at the downstream end of the OCH site has increased since the restoration began in 2005 (Don Peters, pers. comm.). Although there is anticipated to be some evaporative and evapotranspirative loss from the Phase IV mitigation site, this will be more than offset by the enhanced surface water flow from the site due to recharging of the now nonfunctioning wetland areas with the mitigation site. If at any point it is determined that a Change Application is needed to dedicate surface water from existing Madison River rights owned by the Granger Ranch to offset water used in this or future phases of the OCH restoration, the Granger Ranch has indicated that they will file that Change Application with DNRC.

D. Topographical/microtopographical requirements related to hydrology and vegetation establishment

The OCH area is relatively flat. A LIDAR flight completed over the area in September, 2007 may inform the project design to take advantage of all microtopographical features on the proposed restoration site, ensuring appropriate surface water elevations on both low and higher elevation sites

to maximize resulting wet meadow and emergent wetland acres. Grading of stream banks and wetland ponds within the project site will be based on the same standards as the Phase I through III projects. Representative cross sections, bed elevation measurements, and slope profiles will be developed within the project site to guide construction and ensure ability to monitor any changes that occur in channel configuration during the monitoring period. (See the following page (s) for the restoration Design Criteria).

OCH Restoration Site – Design Criteria:

Note: The project design was not available to append to the Site/Monitoring Plan at the time this Draft EA was assembled. Final design criteria will be available from FWP by the time construction is scheduled to begin which is no later than May 20, 2008.]

E. Planting schedule

Planting will be limited to revegetation of upland sites with an upland grass/forb seed mix where necessary to attempt to prevent encroachment of weeds into disturbed areas. This seeding will occur immediately after machinery is moved off the site and hopefully before spring rains in the area subside. Willow planting guidelines as required by the NRCS CREP contract are currently being discussed by NRCS and the Granger Ranch. More detailed plans regarding those plantings will be appended in the final Site Plan as appropriate. At the present time, willow planting is at least intended to include transplanting of willows in the harvested sod mats which in the Phase I and II projects have already begun to grow well in areas where site conditions are conducive to willow growth. It is possible that the “willow planting plan” for the Phase IV project may be limited to the reestablishment of willows that occurs through transplanting of these sod mats that currently contain willow seedlings and/or roots.

F. Reliance on natural vegetation

Over ninety percent of the project site will be left to revegetate naturally. Wetland obligate and facultative/wetland plants are expected to gradually replace upland, facultative, and facultative/wetland plants that now predominate. Sod mats will be shallowly harvested from depression areas within the project site to place along stream banks to stabilize them. Sod borrow patch size and minimum spacing between borrow strips will be small, using the same parameters as in Phases I through III which have been observed in the field by USACE Helena staff. Harvest area locations will be based on the results of the September, 2007 LIDAR microtopographical survey. Harvest areas that fill with groundwater will be left as shallow, open water, and emergent marsh less than 1-2 feet in depth. Mat harvest areas that do not fill with ground water will be left to revegetate on their own. It is expected that the dense Baltic rush community in the area will rapidly colonized sod mat harvesting sites. Sod mats will be translocated from harvest sites to streamside locations with the use of a spider hoe and by hand. Sod mats will be harvested in small patches rather than large ones and will be selected based on a predominance of sedge, rush, and some willow stock already growing in them.

G. Weed control

Vegetative surveys completed on the site by Aquilavision, a Missoula-based firm contracted by Madison County to aerially map weed infestations in the county, have shown that there are mixed stands of upland grasses and forbs on the restoration site with a moderate density of Canada thistle. Spotted knapweed, leafy spurge, Dalmatian toadflax, and other noxious weeds found elsewhere in the Madison Valley have not been documented on the proposed OCH site. The standard for weed tolerance on the site will be adhered to, that is that there will be less than 5% noxious weed infestation on the site. During the monitoring period, we intend to demonstrate a declining trend in the percentage of noxious weed infestation on the site.

H. Erosion control

Because of the flat topography of the entire restoration site and the relatively constant flow of the springs and spring creek channels in the vicinity, erosion is not a significant concern for the project. Where it does occur, seeding and woody plantings will be used to promote bank stability and to encourage native plants to compete with invasive species. Significant transport of soil and gravel from the stream banks, ditch banks, and streambed has not been observed in any of the Phase I, II, or III construction or post-construction phases. Based on the type of machinery that will be employed during construction and the small, patchy nature of sod mat harvest, there will be a very small area of disturbance, minimizing potential for erosion in upland and other sites. As part of the project's monitoring phase, there will be some replicated stream profile surveys to ensure that the completed project maintains the desired stream profile and grades. General bank stability will be monitored through ocular surveys and replicated photo points. Rather than installing groundwater-monitoring wells, the project will include continued maintenance and data gathering utilizing staff gauges in and near the restoration site. These data will be supplemented with data collected from 2005-2007 providing a multi-year, season-to-season overview of surface hydrology in the restoration area including stream discharge rate as well as demonstrating gaining and losing reaches of the channels in the OCH.

I. Management considerations including fencing and grazing

Management of the site in perpetuity will be guided by conservation provisions in an existing conservation easement between the Granger Ranch, NRCS, and Montana Land Reliance which was completed in 2006. As part of an overlapping easement with the Granger Ranches, FWP has worked out the following grazing prescription that ensures protection of soil, vegetation, and overall wildlife habitat. The grazing prescription will take effect in 2020 when the existing USDA Conservation Reserve Enhancement Program contract, which overlays the mitigation site, expires. Grazing prescription follows:

Stocking Rate: A conservative stocking rate of up to 1.4 acres per AUM. 1 AUM is defined as 1 cow with 1 calf grazing for 1 month.

Mineral Supplement: No placement of minerals or other supplements on the mitigation site. If it is necessary to place mineral blocks in the pasture, they will be placed on the highest, driest, and rockiest locations. Place mineral block as far away as possible from water and stream bank areas.

Period of Use & Grazing Frequency: The pasture will be open for grazing 2 out of 3 years from about August 1 to late October within the recommended stocking rate. Once the stocking rate is achieved, cattle will be moved to another location on the ranch. Every third year, the pasture will be rested from livestock grazing for the entire year. The pasture would be grazed 2 consecutive years, rested, then grazed again for 2 consecutive years, etc. No winter grazing or feeding is permitted. Grazed years will be 2020, 2021, 2023, 2024, 2026, 2027, 2029, 2030 and so on.

COSTS

Design and Permit Acquisition	\$ 28,000
Construction	\$294,000
Construction Administration	\$ 12,000
Monitoring and Reporting	\$ 60,000
Easement Recording	\$ 200
Project Oversight and Administration	\$ 0
TOTAL	\$394,200

PERFORMANCE STANDARDS

- A. Restore at least 16.64 acres of wet meadow and emergent marsh wetland
- B. Maintain as-built streambed profile and detection/arrest of any head cuts that develop
- C. Meet 1987 Corps Wetland Delineation Manual criteria for A. To ensure verification of the hydrology standard, install groundwater monitoring wells to demonstrate a saturated soil profile for at least 12.5% of the growing season. One well will be placed within each wetland polygon of at least 5 acres in size. If there is a single wetland polygon, two wells will be installed.
- D. Protect mitigation site in perpetuity via easement between Granger Ranch and FWP. Secure conservation easement with Granger Ranch by June 30, 2008.
- E. (There will be no streambed standard because no stream mitigation credits are needed to result from this project).
- F. Less than 5% noxious weed infestation on the site
- G. Water surface profile will be developed and monitored as the hydrology performance standard

REPORTING PROTOCOLS AND MONITORING PLAN

FWP will gather data through its monitoring program for the site that will meet the Corps' requirements for successful mitigation of wetlands on the site. This documentation will include:

1. Monitoring wetland boundaries during mid-growing season
2. Monitoring borrow sites to include replicated photos and estimated foliar cover and determination of dominants (estimated cover of at least 20%)

3. Wetland vs. open water mapping
4. Vegetation community mapping (general community overlay on aerial image)
5. Vegetation transects to detect community changes including status of noxious weed populations
6. Wetland delineation to gather wetland soils data
7. Stream monitoring including stream gauge maintenance and data gathering to develop water surface profile and to add to the hydrologic dataset as well as to demonstrate maintenance of the as-built stream profile
8. General wildlife use including observations of reptiles, amphibians, mammals, and other vertebrates
9. Maintain representative photo points as part of normal wetland delineation activities
10. Complete MDT functional assessment for the site preconstruction and at the end of the monitoring period
11. Project site maintenance will be facilitated by GPSing site boundary corners for long-term site visits and relocations. During the monitoring phase of the project, delineation transects and flag locations will be maintained and markers replaced as needed to ensure consistency and comparability of data collected.

Construction will occur in the spring of 2008. Monitoring will be conducted in 2009 and again in either 2010 or 2011 depending on the results of the 2009 data gathering effort. If wetland conditions develop on the site by 2010 or 2011, monitoring will end and a final report and request for credit verification by the Corps of Engineers (USACE) will be produced. If wetland conditions have not developed by the 2010/2011 monitoring period, FWP and the USACE will meet to discuss necessary remedial actions to achieve performance standards.

LONG TERM PROTECTION PLAN

A. Financial and legal protections

FWP will hold back some of the fees collected to finance monitoring and reporting. Legal protection of the site by FWP will be secured through conservation easement with the Granger Ranch. That easement will assign protection of the site in perpetuity.

B. Responsibility for remedial actions necessary to successfully establish the site

FWP will work in cooperation with the Granger Ranch to control noxious weeds within the 5% limit mentioned above as well as conduct other remedial actions on the 2008 restoration site for the duration of the construction and monitoring phases. After that time, the Granger Ranch will resume responsibility for remedial actions having to do with management of noxious weeds, fire, and other normal ranch operation effects.

C. Site management/maintenance

Long-term protection of the mitigation site will be secured in part through a conservation easement by and between FWP and the Granger Ranch. This easement will be reviewed and approved by the Corps before it is executed. Haying and grazing on the restoration site is

prohibited by the current Conservation Reserve Enhancement Program (CREP) contract until 2020. Following expiration of that contract, the easement between FWP and the Granger Ranch will prohibit haying on the restoration site in perpetuity. Additionally, grazing on the restoration site when the current CREP contract expires will be prescribed by a grazing plan contained within the conservation easement between FWP and the Granger Ranch. This grazing plan will ensure that the restoration site will be protected from adverse livestock grazing effects in perpetuity. All other site management and maintenance considerations that occur after the end of the construction and monitoring phases will be addressed as a normal and customary part of enforcement of the conservation easements by the easement holders which are NRCS, Montana Land Reliance, and FWP.

PERMITS AND AUTHORIZATIONS REQUIRED FOR THE PROJECT

All local, state, and federal permits or other authorizations required for the project will be obtained by FWP and its contractors in time to complete the scheduled activities. This will include, but not necessarily be limited to, a Section 404 permit from the Corps, 310 certification from the Madison County Conservation District and FWP, and cultural resource clearance from the state historic preservation office.

APPENDIX B

Note: The Conservation Easement associated with this action is still in progress and will be acted upon by the FWP Commission on May 15, 2008. A Grazing Plan for the Easement area will be appended to the Easement and is still in process